Efficient scarless genome editing in human pluripotent stem cells.

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Authors: Kazuya Ikeda, Nobuko Uchida, Toshinobu Nishimura, Joseph White, Renata M Martin, Hiromitsu Nakauchi, Vittorio Sebastiano, Kenneth I Weinberg, Matthew H Porteus

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Public Summary:
Changing the DNA sequence within the genomes of human pluripotent stem cells has potentially broad applications in stem cell therapies. However, current methods of gene editing often leave genetic “scars” that can be detrimental to downstream applications. Here, we developed a new approach that achieved efficient and scarless gene editing in human pluripotent stem cells.

Scientific Abstract:
Scarless genome editing in human pluripotent stem cells (hPSCs) represents a goal for both precise research applications and clinical translation of hPSC-derived therapies. Here we established a versatile and efficient method that combines CRISPR-Cas9-mediated homologous recombination with positive-negative selection of edited clones to generate scarless genetic changes in hPSCs.